

Ilia L. Rasskazov

theorist experienced in optics and light-matter interactions



Appointments

- 07/2018 - current
Postdoctoral Associate
The Institute of Optics, University of Rochester, NY, USA
- 07/2016 - 07/2018
Postdoctoral Associate
Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign, IL, USA
- 01/2014 - 07/2016
Research Associate
Siberian Federal University, Russia
- 12/2012 - 03/2013
Visiting Scientist
University of Pennsylvania, PA, USA
- 01/2010 - 12/2011
Laboratory Assistant
Siberian Federal University, Russia



Education

- 2011 - 2015
PhD in Physics
Siberian Federal University, Russia
- 2009 - 2011
MS Engineering majoring in Physics
Siberian Federal University, Russia
- 2005 - 2009
BS Engineering majoring in Physics
Siberian Federal University, Russia



Projects

- 2020 - 2021
NSF SBIR project #201481
"Advanced Manufacturing of Photonic Smart Coatings for Utility-Scale PV Applications"
- 2016 - 2017
IARPA-supported project #IARPA-BAA-15-07
"Standoff ILLuminator for Measuring Absorbance and Reflectance Infrared Light Signatures (SILMARILS)"
- 2012 - 2013
Collaborator at **NSF**-supported project #1216970
"Computational Framework for Non-asymptotic Homogenization with Applications to Metamaterials"



Invited Talks

- 07/28/2020 "Collective lattice resonances: Plasmonics, all-dielectric photonics and beyond"
Skolkovo Institute of Science and Technology, Russia
- 07/07/2020 "Light scattering from multilayered spheres",
ITMO University, Russia (METANANO School)
- 05/29/2019 "Electromagnetic light scattering from particles",
KTH Royal Institute of Technology, Sweden
- 05/22/2019 "Plasmon-enhanced upconversion",
KTH Royal Institute of Technology, Sweden

- 28 peer-reviewed papers
- H-index: 11
- OSA, ACS member

Contact



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GitLab

Topic Editor



Photonics



Frontiers in Physics

Review Editor



Frontiers in Physics



Frontiers in Nanotechnology



Frontiers in Photonics



Photonics



Symmetry

Reviewed for

(82 in total): ACS Appl Mater Inter; Appl Optics; Appl Sci; Atmosphere; Chemometr Intell Lab; Coatings; Front Phys; J Appl Phys; J Eur Opt Soc-Rapid; J Opt; J Opt Soc Am A; J Opt Soc Am B; J Phys Chem C; J Phys D Appl Phys; J Quant Spectrosc Ra; Materials; Opt Express; Opt Lett; Opt Mater Express; OSA Contin; Photonics; Photonics Res; Physica E; Sci Rep; Sensors; Symmetry



Peer-reviewed journal papers

2021

- 28 A. D. Utyushev, V. I. Zakomirnyi and I. L. Rasskazov,
“[Collective lattice resonances: Plasmonics and beyond](#)”,
Reviews in Physics **6**, 100051 (2021)
- 27 I. L. Rasskazov, V. I. Zakomirnyi, A. D. Utyushev, P. S. Carney and A. Moroz,
“[Remarkable predictive power of the modified long wavelength approximation](#)”
J. Phys. Chem. C **125**(3), 1963-1971 (2021)
- 26 V. S. Gerasimov, A. E. Ershov, R. G. Bikbaev, I. L. Rasskazov, I. L. Isaev, P. N. Semina, A. S. Kostyukov,
V. I. Zakomirnyi, S. P. Polyutov and S. V. Karpov
“[Plasmonic lattice Kerker effect in ultraviolet-visible spectral range](#)”
Phys. Rev. B **103**, 035402 (2021)
- 25 I. L. Rasskazov, P. S. Carney and A. Moroz,
“[STRATIFY: a comprehensive and versatile MATLAB code for a multilayered sphere](#)”,
OSA Continuum **3**(8), 2290-2309 (2020). [[Belonged to top Downloads from Aug, Nov 2020](#)]
- 24 I. L. Rasskazov, P. S. Carney and A. Moroz,
“[Intriguing branching of the maximum position of the absorption cross section in Mie theory explained](#)”,
Opt. Lett. **45**(14), 4056-4059 (2020).

2020

- 23 V. I. Zakomirnyi, I. L. Rasskazov, L. K. Sørensen, P. S. Carney, Z. Rinkevicius and H. Ågren,
“[Plasmonic nano-shells: atomistic discrete interaction versus classic electrostatics models](#)”,
Phys. Chem. Chem. Phys. **22**(24), 13467-13473 (2020). [[Belonged to 2020 PCCP HOT articles](#)]
- 22 S. Sun, I. L. Rasskazov, P. S. Carney, T. Zhang and A. Moroz,
“[Critical role of shell in enhanced fluorescence of metal-dielectric core-shell nanoparticles](#)”,
J. Phys. Chem. C **124**(24), 13365-13373 (2020).
- 21 A. D. Utyushev, V. I. Zakomirnyi, A. E. Ershov, V. S. Gerasimov, S. V. Karpov and I. L. Rasskazov,
“[Collective lattice resonances in all-dielectric nanostructures under oblique incidence](#)”,
Photonics **7**(2), 24 (2020).
- 20 A. D. Utyushev, I. L. Isaev, V. S. Gerasimov, A. E. Ershov, V. I. Zakomirnyi, I. L. Rasskazov, S. P. Polyutov,
H. Ågren and S. V. Karpov,
“[Engineering novel tunable optical high-Q nanoparticle array filters for a wide range of wavelengths](#)”,
Opt. Express **28**(2), 1426-1438 (2020).
- 19 V. I. Zakomirnyi, A. E. Ershov, V. S. Gerasimov, S. V. Karpov, H. Ågren and I. L. Rasskazov,
“[Collective lattice resonances in arrays of dielectric nanoparticles: a matter of size](#)”,
Opt. Lett. **44**(23), 5743-5746 (2019).
- 18 A. S. Kostyukov, A. E. Ershov, V. S. Gerasimov, S. A. Filimonov, I. L. Rasskazov and S. V. Karpov,
“[Super-efficient laser hyperthermia of malignant cells with core-shell nanoparticles based on alternative plasmonic materials](#)”,
J. Quant. Spectrosc. Radiat. Transf. **236**, 106599 (2019).

2019

- 17 I. L. Rasskazov, A. Moroz and P. S. Carney,
“[Electromagnetic energy in multilayered spherical particles](#)”,
J. Opt. Soc. Am. A **36**(9), 1591-1601 (2019).
- 16 I. L. Rasskazov, R. Singh, P. S. Carney, R. Bhargava,
“[Extended multiplicative signal correction for infrared microspectroscopy of heterogeneous samples with cylindrical domains](#)”,
App. Spec. **73**(8), 859-869 (2019). [[Editor's Choice](#)]
- 15 V. I. Zakomirnyi, S. V. Karpov, H. Ågren and I. L. Rasskazov,
“[Collective lattice resonances in disordered and quasi-random all-dielectric metasurfaces](#)”,
J. Opt. Soc. Am. B **36**(7), E21-E29 (2019). [[Belonged to the Feature Issue](#)]
- 14 V. S. Gerasimov, A. E. Ershov, R. G. Bikbaev, I. L. Rasskazov, I. V. Timofeev, S. P. Polyutov and S. V. Karpov,
“[Engineering mode hybridization in regular arrays of plasmonic nanoparticles embedded in 1D photonic crystal](#)”,
J. Quant. Spectrosc. Radiat. Transf. **224**, 303-308 (2019).

- 2018
- 13 I. L. Rasskazov, L. Wang, C. J. Murphy, R. Bhargava and P. S. Carney, "Plasmon-enhanced upconversion: engineering enhancement and quenching at nano and macro scales", *Opt. Mater. Express* **8**(12), 3787-3804 (2018). [Belonged to top Downloads from November 2018]
- 12 V. I. Zakomirnyi, I. L. Rasskazov, V. S. Gerasimov, A. E. Ershov, S. P. Polyutov, S. V. Karpov and H. Ågren, "Titanium nitride nanoparticles as an alternative platform for plasmonic waveguides in the visible and telecommunication wavelength ranges", *Photonic. Nanostruct.* **30**, 50-56 (2018). [Invited]
- 11 I. L. Rasskazov, N. Spegazzini, P. S. Carney and R. Bhargava, "Dielectric sphere clusters as a model to understand infrared spectroscopic imaging data recorded from complex samples", *Anal. Chem.* **89**(20), 10813-10818 (2017).
- 10 V. I. Zakomirnyi, I. L. Rasskazov, V. S. Gerasimov, A. E. Ershov, S. P. Polyutov and S. V. Karpov, "Refractory titanium nitride two-dimensional structures with extremely narrow surface lattice resonances at telecommunication wavelengths", *Appl. Phys. Lett.* **111**(12), 123107 (2017).
- 2017
- 9 V. S. Gerasimov, A. E. Ershov, S. V. Karpov, A. P. Gavriilyuk, V. I. Zakomirnyi, I. L. Rasskazov, H. Ågren and S. P. Polyutov, "Thermal effects in systems of colloidal plasmonic nanoparticles in high-intensity pulsed laser fields", *Opt. Mater. Express* **7**(2), 555-568 (2017). [invited] [Belonged to the Feature Issue]
- 8 A. E. Ershov, V. S. Gerasimov, A. P. Gavriilyuk, S. V. Karpov, V. I. Zakomirnyi, I. L. Rasskazov and S. P. Polyutov, "Thermal limiting effects in optical plasmonic waveguides", *J. Quant. Spectrosc. Radiat. Transf.* **191**, 1-6 (2017).
- 7 V. I. Zakomirnyi, I. L. Rasskazov, S. V. Karpov and S. P. Polyutov, "New ideally absorbing Au plasmonic nanostructures for biomedical applications", *J. Quant. Spectrosc. Radiat. Transf.* **187**, 54-61 (2017).
- 2016
- 6 I. L. Rasskazov, S. V. Karpov, G. Y. Panasyuk and V. A. Markel, "Overcoming the adverse effects of substrate on the waveguiding properties of plasmonic nanoparticle chains", *J. Appl. Phys.* **119**(4), 043101 (2016).
- 2014
- 5 I. L. Rasskazov, S. V. Karpov and V. A. Markel, "Waveguiding properties of short linear chains of nonspherical metal nanoparticles", *J. Opt. Soc. Am. B* **31**(12), 2981-2989 (2014).
- 4 I. L. Rasskazov, S. V. Karpov and V. A. Markel, "Surface plasmon polaritons in curved chains of metal nanoparticles", *Phys. Rev. B* **90**(7), 075405 (2014).
- 3 I. L. Rasskazov, S. V. Karpov and V. A. Markel, "Nondecaying surface plasmon polaritons in linear chains of silver nanospheroids", *Opt. Lett.* **38**(22), 4743-4746 (2013).
- 2013
- 2 I. L. Rasskazov, V. A. Markel and S. V. Karpov, "Transmission and spectral properties of short optical plasmon waveguides", *Opt. Spectrosc.* **115**(5), 666-674 (2013).
- 1 S. V. Karpov and I. L. Rasskazov, "Simulation of conditions for fabrication of optical nanowaveguides in the form of chains of spherical metal nanoparticles by electrostatic functionalization of the process substrate", *Colloid J.* **75**(3), 279-288 (2013).